

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the reasons that follow. Claim 6 is currently pending.

Response and Declaration

The Office notes on page 2 of the Office Action that Table 1 was not previously submitted with the response and declaration of October 23, 2009. Enclosed with this response is a resubmission of the declaration, complete with a copy of Table 1, which was inadvertently omitted from the response of October 23, 2009. To the extent that the Office feels that there is any deficiency with the declaration or the Information Disclosure Statements discussed below, Applicant respectfully requests that the Office contact the undersigned.

Information Disclosure Statements

Applicant acknowledges receipt of signed and initialed copies of the PTO/SB/08 forms submitted with the Information Disclosure Statements of April 30, 2008 and October 29, 2009.

Applicant respectfully notes that the PTO has not considered reference A3 listed on the Information Disclosure Statement form PTO/SB/08 submitted by Applicant on November 12, 2004. In the Office Action of June 20, 2007, the PTO crossed off reference A3 and included an annotation noting that no English abstract was provided and that the PTO could not locate an abstract on PAJ (Patent Abstracts of Japan).

Applicant respectfully notes that reference A3 was cited by the Japanese Patent Office on the International Search Report dated August 26, 2003. Applicant previously resubmitted a copy of the International Search Report dated August 26, 2003 and an English language copy of the International Search Report with the response of July 23, 2009. Applicant respectfully requests that the next Office correspondence include a signed and initialed copy of the PTO/SB/08 form submitted with the Information Disclosure Statement of November 12, 2004.

In addition, an Information Disclosure Statement and PTO/SB/08 form were submitted on December 17, 2009. Applicant respectfully requests that the next Office correspondence include a signed and initialed copy of the PTO/SB/08 form submitted with the Information Disclosure Statement of December 17, 2009.

Rejection under 35 U.S.C. § 103

Claim 6 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 3,015,558 Grant *et al.* (hereafter "Grant") as allegedly evidenced by "Material Hardness", in view of U.S. Patent No. 6,503,345 to Klarstrom (hereafter "Klarstrom"). Applicants respectfully traverse this rejection for at least the reasons set forth below.

The cutter of claim 6 provides superior, indeed unexpected, results over the applied prior art. The cutter of claim 6 comprises base Ni, Cr, and Al as well as other elements such as Mg, Ca, B, and rare earth element in the amounts recited in claim 6. The recited amounts of Mg, Ca, B, and rare earth element added to the Ni-Cr-Al type alloy for the cutting tool provide a cutting tool excellent in hot workability and in cutting performance. These elements provide deoxidization and desulfurization effects and can be used as additives to improve the hot workability. In this regard, Applicants wish to direct the PTO's attention to the second paragraph on page 13 of the originally filed specification.

Also, when Mg, Ca, B are added to the alloy, a sensibility of the alloy with respect to a hot-working temperature can be effectively lowered. Namely, the amounts of P, O, and S segregated in the grain boundary can be reduced by the deoxidization and desulfurization effects of the added elements, so that it becomes possible to suppress crack-formation in the Ni-Cr-Al type alloy at the time of hot working process. As a result, it becomes possible to perform a stable hot-working operation even if a degree of accuracy of controlling the hot-working temperature is low. Further, because the claimed amounts of P, O, and S are reduced by the above process, defects and damage caused by intervening substances originated from P, O, and S can be greatly reduced at the time the work is polished. In this regard, Applicants

wish to direct the PTO's attention to the second paragraph on page 12 of the originally filed specification.

Excellent hot workability can greatly reduce crack-formation in the crystal structure, making it possible to effectively reduce blade-breakage when the alloy is worked into a cutter or when the cutter is used as a cutting blade. As a result, excellent cutting properties can be maintained for a longer time period as evidenced by the cut test discussed in the present specification. The Mg, Ca, B, and rare earth elements can promote a uniform aging precipitation reaction so that aging temperature is lowered. As a result, the cutter made from the alloy exhibits excellent hardness and high toughness. When the additive elements of claim 6 are used in the alloy, a sensitivity of the alloy with respect to a hot-working temperature can be effectively lowered.

Resubmitted with this response is the declaration under 37 C.F.R. § 1.132 by inventor Takashi Rokutanda (previously filed with the response of October 23, 2009) that includes data from additional experiments conducted by the Applicant. These experiments include additional samples with various compositions to provide data that is commensurate in scope with the claimed invention of claim 6, samples with excessive amounts of additive elements to demonstrate that these additive elements provide effects, and samples corresponding to Examples 2 and 7 of Grant.

Samples corresponding to Examples 2 and 7 of Grant were prepared to compare samples representing the claimed invention of claim 6 with the closest prior art. See MPEP § 716.02(e). Applicant notes that the Applicant is not required to compare the claimed invention to any features suggested by a combination of Grant, Material Hardness, and Klarstrom. See MPEP § 716.02(e), Part III. Examples 2 and 7 of Grant were selected as the closest prior art for comparison during the interview with Examiner George Wyszomierski on July 16, 2009.

Applicant respectfully submits that the data provided in the Rokutanda declaration demonstrates that the claimed invention of claim 6 (exemplified with data represented by samples 1-8) provides significantly improved properties, namely a combination of hot

workability and cutting performance, in comparison to Examples 2 and 7 of Grant, the closest prior art. Please refer to the explanation and accompanying remarks, e.g. Paragraph 12, of the Rokutanda declaration.

In addition, the disclosure of Applicant's application demonstrates that a cutter having the composition of claim 6 provides superior properties. For example, Figure 5 of Applicants' application demonstrates that alloys having a composition of 33 mass % Cr, 38 mass % Cr, and 43 mass % Cr, with each having an aluminum content of 3.8 % Al and balance Ni, have superior cutting performance than alloys with the same aluminum content and balance Ni but 31 mass % Cr and 45 mass % Cr. Figure 6 of Applicants' application demonstrates that alloys having a composition of 38 mass % Cr and balance Ni with aluminum contents of 2.4, 3.8, 4.9, and 5.7 mass % Al have superior cutting performance to alloys with 38 mass % Cr and balance Ni, but with 2.2 mass % Al and 6.3 mass % Al. Furthermore, samples 1, 2, 4, 6, 8, 10, and 16-18 of Table 2 of Applicant's application demonstrate improved results.

For at least the reasons discussed above, Applicant respectfully submits that the claimed invention of claim 6 provides an unexpectedly improved result over the asserted closest art, which rebuts any general allegation that claim 6 would have been obvious over the combination of Grant, Material Hardness, and Klarstrom (and Applicants do not concede that any prima facie case of obviousness has been shown).

In addition, Grant, Material Hardness, and Klarstrom, whether taken individually or in combination, fail to teach or suggest a cutter comprising a Ni-Cr alloy "wherein a moving distance of the cutter required for completely cutting a hemp rope is doubled or less compared with an initial state of the cutter even after 1,000 cut operations are performed when a rope cut test is performed under conditions that a linear blade part of the cutter is pressed on a hemp rope having a diameter of 10 mm and the cutter is reciprocated in the horizontal direction while a load of 2 kg is applied to the cutter whereby the moving distance of the cutter required for completely cutting the hemp rope is repeatedly measured," as recited in claim 6. For at least this reason, Applicants submit that the outstanding rejection does not properly apply to claim 6.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the outstanding rejection under 35 U.S.C. § 103.

Applicant expressly requests a telephone interview if the Examiner does not believe that this case is in condition for allowance after review of this response.

Conclusion

Applicant submits that the present application is now in condition for allowance. Favorable reconsideration of the application is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date **DEC 31 2009** _____

By  _____

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